

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

BUREAU OF PLANT INDUSTRY,

Forage-Crop Investigations,

WASHINGTON, D. C.

SOY BEAN (*Glycine hispida*).

The soy bean, called also the soja bean and Manchurian bean, is an erect, rather hairy, annual leguminous plant. It is a native of southeastern Asia and has been grown extensively in China, Japan, and India, principally as human food. Within the past three years the crop has become of special importance because of the immense importations of beans, oil, and cake from Manchuria to Europe and America. The soy bean is especially adapted to the cotton belt and northward into the central part of the corn belt. With the introduction of new varieties within recent years the crop is growing in importance in the Northern States. Soy beans are decidedly drought resistant, but rabbits are so partial to their foliage that the crop is not a success in the semiarid regions. The soy bean is a valuable crop in various ways and has many points of superiority over the cowpea, as the forage is more nutritious either as seed, hay, or ensilage and the seed is weevil proof. One of its most common uses is for hay, which is comparable to alfalfa and red clover in feeding value. The yield of hay is about equal to that of the cowpea, or about 2 tons per acre. The soy bean is valuable as a pasture for hogs and sheep and is also of value as a soiling crop, yielding from 5 to 10 tons of green forage per acre. It also makes an excellent ensilage with corn, using by weight two parts of corn to one of soy beans. It is better to grow the two crops in separate fields and mix them in the cutting. The soy bean is an excellent green-manure crop, greatly increasing the supply of humus and nitrogen in the soil. It is also a very profitable crop to grow for seed, as the supply seldom equals the demand. Excellent results are obtained in feeding the grain to dairy cows, substituting it for cottonseed meal or oil meal in the dairy ration. The seed yield is frequently 25 to 30 bushels per acre, and the crop is easily harvested with machinery.

Inoculation.—Soy beans, like other legumes, when well inoculated add much nitrogen to the soil. Natural inoculation occurs quite generally throughout the South, the proper bacteria seeming to be quite widely distributed. In isolated localities where this crop has not been previously grown some difficulty from lack of inoculation may be expected, during the first season at least. Northward and westward greater difficulty in this regard is experienced. The inoculation of a new field may be most certainly secured by applying soil from an old soy-bean field, using about 300 pounds of soil to the acre.

Seeding.—The land should be well prepared before seeding and, if the soil is low in fertility, potash and phosphoric acid should be applied to obtain the best results. Soy beans should not be planted until all danger of frost is past and the ground has become thoroughly warm. Planting in rows from 30 to 36 inches apart is the most common method and is decidedly the best. They may be seeded broadcast or drilled if intended for hay, soiling, or green manure. Planted in rows, about 30 pounds of seed per acre is found satisfactory, and if broadcast or drilled about 60 pounds. The planting should be shallow, not exceeding 2 inches in depth.

Soy-bean seed should be selected with the idea of getting a variety suitable to the locality where it is to be grown, not growing the early varieties in the South or the late ones in the North.

Varieties.—At the present time there are about 15 varieties of soy beans handled by seedsmen. More than 300 distinct varieties are known and have been grown by the Department of Agriculture on its testing grounds. Some of these varieties have proved very promising in various sections of the country and are now on the market. The varieties are largely distinguished by color and size of seed, though they differ in maturity, habit, etc. Following are brief notes on the more important varieties:

Mammoth (seeds, straw yellow).—This is the standard commercial late variety, more extensively grown at present than any other. The Mammoth yields well and is satisfactory for both grain and forage. It can not be expected to mature north of Tennessee and Virginia.

Hollybrook (seeds, straw yellow).—This variety is about two weeks earlier than the Mammoth and therefore can be grown farther north. The seed is very nearly identical with that of the Mammoth. The Hollybrook is not especially desirable for hay, but is a good grain producer.

Ito San (seeds, straw yellow).—This variety is also called Yellow, Dwarf Yellow, Early Yellow, Medium Yellow, and Early White. It will mature in about 100 days and can be grown well in the Northern States. The Ito San is very satisfactory for forage and is also a good grain producer.

Guelph (seeds, green).—This variety is commonly known as Medium Green, Medium Early Green, and Large Medium Green. It is about 10 days later than Ito San, and is grown principally in Ohio, New York, New Jersey, and Massachusetts. The Guelph is esteemed for its forage, and is also a good yielder of seed.

Haberlandt (seeds, straw yellow).—This variety is about 10 days later than Ito San. It is a heavy grain yielder and gives a good hay. Under favorable conditions in Virginia, Tennessee, Ohio, Illinois, Indiana, and Kentucky the Haberlandt has proved very satisfactory.

Wilson (seeds, black).—This variety matures about the same time as Haberlandt. It is a heavy grain yielder and is also excellent for hay. The Wilson has been found valuable in Illinois, Indiana, Ohio, New Jersey, Delaware, and Maryland.

Peking (seeds, black).—This variety has small, flat seeds and matures about the same time as the Wilson. It is not only a good grain yielder, but is also a most excellent hay variety. The Peking has been found valuable in North Carolina, Virginia, Tennessee, Kentucky, and Delaware.

Ebony (seeds, black).—This variety is quite commonly called Black Beauty, and has seeds very similar to the Peking. It is of about the same maturity as the Peking and not only yields well in seed, but is an excellent hay variety. The Ebony is grown most largely in Illinois, Indiana, Ohio, Delaware, and New Jersey.

Austin (seeds, olive yellow).—This variety is a week or 10 days later than the Haberlandt. It is an excellent grain producer. The Austin has been found especially promising in Virginia, Tennessee, and southern Pennsylvania.

Harvesting.—The matter of harvesting depends upon what use is to be made of the crop. For hay, soy beans should be cut when the top leaves begin to turn yellow. A good forage can be obtained by cutting when the first leaves begin to fall, getting in this way a fairly good hay and a lot of seed or grain. When grown for grain alone, the cutting may be delayed in the case of most of the varieties until all of the leaves have fallen. The small early varieties can best be harvested with a mowing machine or bean harvester. The later and taller-growing varieties can be satisfactorily harvested with a mowing machine or a self-binder, the latter being the better for rather tall varieties. In the thrashing the ordinary grain separator does very satisfactory work if run at moderate speed and with blank concaves. Thrashers for soy beans and cowpeas are now in the market and do very satisfactory work.

W. J. MORSE,
Scientific Assistant.

MARCH 15, 1912.

